

**Notice of Allowability**

Application No.

10/559,693

Examiner

Erica E. Cadugan

Applicant(s)

GREIF ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to docket no. 7400-X05-126, filed 5/4/06, and interview of 11/30/06.
2. ☒ The allowed claim(s) is/are 13-24.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                                             |                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                 | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                        | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date <u>12/5/05</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                  | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|                                                                                                                             | 9. <input type="checkbox"/> Other _____.                                               |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Martin Fleit on November 30, 2006.

The application has been amended as follows:

On page 1 of the specification, the first paragraph has been amended as follows:

The invention relates to a clamping device [according to the preamble of Claim 1] for clamping a hollow shaft tool or tool holder provided with a conical hollow shaft in a machine spindle provided with a taper bore, especially for use in a machine tool.

On page 1 of the specification, the fourth paragraph has been amended as follows:

This problem is solved by the clamping device with the characteristics of the present invention [Claim 1. Additional refinements and advantageous developments of the invention are the subject of the subordinate claims.]

The abstract has been amended as follows:

#### ABSTRACT:

The invention relates to a device for clamping a hollow shaft tool (1) or tool holder provided with a conical hollow shaft (3) in a machine spindle (2) provided with a taper bore (4), especially for use in a machine tool. [Said] The device comprises a clamping sleeve (7), axially displaceable inside the machine spindle (2), a tow-rod (8) for displacing the clamping sleeve (7)

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and being movable between a release position and a clamping position, and a plurality of pincer elements (19) associated with the clamping sleeve (7). [Said] The pincer elements are radially displaced by the displacement of the clamping sleeve (7) and have clamping faces (21, 24) to be placed on a conical inner surface (22) of the conical hollow shaft (3) and an opposite surface (26) on the work spindle (1). The aim of the invention is to provide a clamping device of the aforementioned kind wherein the hollow shaft tool is reliably retained in the machine spindle even when the tow-bar is already released. For this purpose, the clamping sleeve (7) can be axially displaced relative to the tow-bar (8) and is axially biased by a compression spring (14) against the motion of release of the tow-bar (8).

Claims 1-12 (Canceled).

Claim 13 (Currently Amended). Device for clamping a hollow shaft tool or a tool holder provided with a conical hollow shaft in a machine spindle having a rotational axis and provided with a taper bore, [especially] for use in a machine tool, with a clamping sleeve that can be axially displaced within the machine spindle, with a tow-bar that can be displaced between a release position and a clamping position and that serves to displace the clamping sleeve, and with [several] a plurality of pincer elements that are assigned to the clamping sleeve and that can be displaced radially due to displacement of the clamping sleeve, where said pincer elements have clamping faces for adjoining a conical inner surface of the conical hollow shaft and for adjoining an opposite surface on the [work] machine spindle, characterized in that the clamping sleeve can be axially displaced relative to the tow-bar and is axially biased in a direction opposite to a direction of the release movement of the tow-bar by a compression spring.

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Claim 14 (Previously Presented). Device according to claim 13, characterized in that the clamping sleeve is displaceably guided on an ejection sleeve that is rigidly connected to the tow-bar.

Claim 15 (Previously Presented). Device according to claim 13 characterized in that the clamping sleeve can be displaced between a front annular shoulder and a rear annular collar.

Claim 16 (Currently Amended). Device according to claim 15, characterized in that the front annular shoulder is disposed on [the] an ejection sleeve and in that the rear annular collar is disposed on a reducer mounted on [the] a rear end of the ejection sleeve.

Claim 17 (Currently Amended). Device according to claim [13] 14, characterized in that the ejection sleeve is screwed onto threads on [the] a front end of the tow-bar.

Claim 18 (Previously Presented). Device according to claim 17, characterized in that the ejection sleeve is secured on the tow-bar with an additional locking screw.

Claim 19 (Currently Amended). Device according to claim 13, characterized in that the compression spring is braced between [the] a front face of the clamping sleeve and a biasing nut.

Claim 20 (Currently Amended). Device according to claim 19, characterized in that the biasing nut is screwed onto external threads on [the] a front end of [the] an ejection sleeve.

Claim 21 (Currently Amended). Device according to claim 13, characterized in that the pincer elements are separated from one another in the circumferential direction of the spindle by means of a spacer.

Claim 22 (Currently Amended). Device according to claim 21, characterized in that the spacer comprises a radially outer holder that is realized in the form of a bush and has beveled

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faces on axially protruding extensions in order to adjoin beveled opposite surfaces on [the] a rear side of the [clamping claws] pincer elements.

Claim 23 (Currently Amended). Device according to claim 22, characterized in that the holder is acted upon in a longitudinal [the] direction of the [clamping claws] pincer elements by a further compression spring.

Claim 24 (Currently Amended). Device according to claim 22, characterized in that the [space] spacer also comprises an inner sleeve that is realized concentric to the holder and comprises [several] a plurality of ring segments that are separated from one another in the circumferential direction of the spindle and protrude between the extensions of the holder, where said ring segments have beveled contact surfaces for adjoining a bevel of the pincer elements.

2. The following is an examiner's statement of reasons for allowance:

U.S. Pat. NO. 6,481,940 to Prust et al. is a representative example of the closest prior art of record to the present invention as set forth in independent claim 13.

Prust et al. teaches a device for clamping a hollow shaft tool or tool holder 4 provided with a "conical hollow shaft" 32 (see Figure 1) in a rotary machine tool spindle 10 provided with a taper bore 34 (Figure 1). Drawbar or "tow-bar" 44 is displaced (vertically as viewed in Figures 1-2) between a release position (shown in Figure 1) and a clamping position (shown in Figure 2) to cause a plurality of "pincer elements" 60 to move radially such that clamping faces (on the radially outer surfaces thereof) engage or disengage an inner conical surface (at 33), as shown in Figures 1-2. Additionally, the "pincer elements" 60, on the opposite end thereof shown at 66 in Figure 1, adjoin an "opposite" surface at 70 of the spindle 10 (see Figure 1).

If the portion 16 screwed to the bottom end of the drawbar or “tow-bar” 44 is considered to be the claimed “clamping sleeve”, noting that it is axially displaced within the spindle 10 when the drawbar 44 moves vertically via the threaded connection at 42 of “sleeve” portion 16 to the drawbar or “tow-bar” 44. Additionally, the movement of the “sleeve” 16 with the drawbar causes the radial displacement of the “pincer elements” 60 between the clamping (Figure 2) release (Figure 1) positions via the engagement of the beveled surface 64 of the “sleeve” 16 with a corresponding surface on the “pincer elements” 60 (see Figures 1-2).

Additionally, it is noted that the “clamping sleeve” 16 “can” be axially displaced relative to the “tow-bar” 44, by loosening or tightening the “sleeve” 16 along the threaded connection, for example.

However, the “clamping sleeve” 16 is not “axially biased in a direction opposite to a direction of the release movement of the tow-bar by a compression spring” as set forth in independent claim 13.

Also, there is no combinable teaching in the prior art of record that would reasonably and absent impermissible hindsight motivate one having ordinary skill in the art to so modify the teachings of Prust.

Additionally/alternatively, even if sleeve 80/96 is considered for the sake of argument to be the claimed “clamping sleeve” (instead of “sleeve” 16 screwed to the bottom of draw bar or “tow-bar” 44), Prust still doesn’t teach the present invention as set forth in independent claim 13.

Specifically, sleeve 80/96 “can be axially displaced within the machine spindle” (see col. 6, lines 46-50, for example, noting the teaching of crown 80 being “pushed axially to the top”).

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Additionally, it appears that actuation/displacement of the “tow-bar” 44 results in the axial movement of “sleeve” 80/96 (see Figures 1-2, col. 6, lines 30-64, for example).

However, even assuming *arguendo* that the other claim limitations regarding the clamping sleeve are met by the sleeve 80/96 taught by Prust (which is arguable), it is noted that the release direction of the drawbar is downward as viewed in Figures 1-2, and that the spring 88 biases the sleeve 80/96 downward (see col. 6, lines 46-64, for example). Thus, the “sleeve” 80/96 is not axially biased “in a direction opposite to a direction of the release movement” of the tow-bar 44 by compression spring 88, but is instead biased in the same direction as the release movement of the tow-bar by the compression spring 88.

Also, there is no combinable teaching in the prior art of record that would reasonably and absent impermissible hindsight motivate one having ordinary skill in the art to so modify the teachings of Prust, and thus, for at least the foregoing reasoning, Prust neither anticipates nor renders obvious the present invention as set forth in independent claim 13.

Additionally, Examiner notes that U.S. Pat. No. 6,287,059 to Hashidate et al. teaches a tool clamping device utilizing a drawbar that has a spring/sleeve arrangement to prevent an unclamped tool from falling out of the spindle (see the abstract, for example). However, the device taught by Hashidate lacks the ability to clamp a “conical inner surface” of any conical hollow shaft of a tool or tool holder as set forth in independent claim 13, but is instead configured and arranged so as to externally clamp a pull stud or knob 22 of a tool or tool holder, and to so modify the teachings of Hashidate would change the principle of operation of Hashidate’s device.

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If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). See also MPEP Section 2143.01.

Additionally, it is unclear how the teachings of Prust could be reasonably and absent impermissible hindsight be combined with those of Hashidate, noting their different principles of operation.

Thus, for at least the foregoing reasoning, the aforescribed prior art being representative of the closest prior art of record, the prior art of record neither anticipates nor renders obvious the present invention as set forth in independent claim 13.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***


3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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